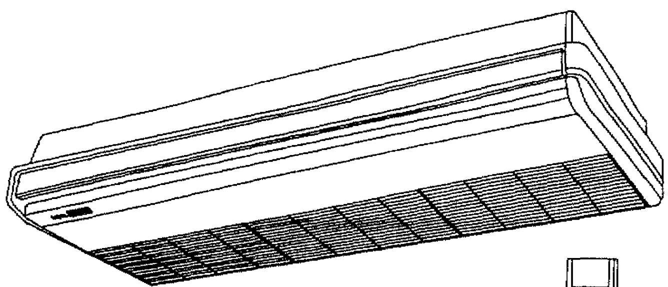
SERVICE MANUAL (Expanded Information)

SANYO

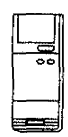
TS3622 / C3622

SPLIT SYSTEM AIR CONDITIONER

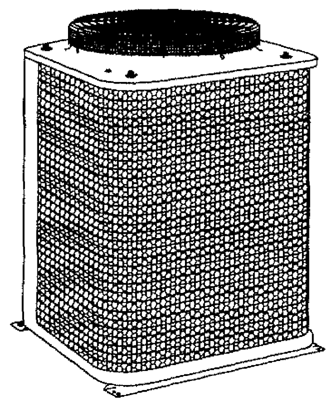
Indoor Unit



TS3622



Outdoor Unit



C3622

8526481018800

REFERENCE NO. WM-700714

Ⓦ

SERVICE MANUAL

TS3622 / C3622

(Expanded Information)

IMPORTANT!
Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning
- Follow each installation or repair step exactly as shown
- Observe all local, state, and national electrical codes
- Pay close attention to all warning and caution notices given in this manual

WARNING: This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION: This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death.**
- **Ground the unit** following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing...

...In a Ceiling or Wall
Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

...In a Room
Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In Moist or Uneven Locations
Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

...In an Area with High Winds
Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

...In a Snowy Area (for Heat Pump-type Systems)
Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When Connecting Refrigerant Tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE:
Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion the refrigerant tubing for your particular model is specified as either "narrow" or "wide" rather than as "liquid" or "gas."

When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

Table of Contents

1. SPECIFICATIONS

1-1 Unit Specifications

Model No.	Indoor unit		TS3622	
	Outdoor unit		C3622	
Performance			Cooling	
	Capacity	BTU/h	36,000 / 35,000	
		kW	10.55 / 10.26	
	Air circulation (High)	cu. ft./min.	950 / 880	
	Moisture removal (High)	pints/h	10.4 / 10.2	
Electrical Rating	Phase, Frequency	Hz	Single, 60	
	Voltage rating	V	230 / 208	
	Available voltage range	V	187 to 253	
	Running amperes	A	15.6 / 16.8	
	Power input	W	3,400 / 3,360	
	Power factor	%	95 / 96	
	Starting amperes	A	98	
	S. E. E. R.	BTU/Wh	10.5 / 10.7	
Features	Controls		Microprocessor	
	Control unit		Wireless remote control unit	
	Temperature control		IC thermostat	
	Timer		ON/OFF, 24-hours & Program	
	Fan speeds	Indoor / Outdoor	3 and Auto / 1	
	Air deflector	Horizontal / Vertical	Manual / Automatic	
	Air filter		Washable, easy access	
	Compressor		Rotary	
	Refrigerant amount charged at shipment	lbs. (kg)	R22: 9.9 (4.5)	
	Refrigerant control		Capillary tube	
	Refrigerant tubing connections		Flare type	
	Operation sound: In-Hi / Me / Lo	dB-A	47 / 43 / 39	
	Operation sound: Out-Hi	dB-A	62	
	Max. allowable tubing length at shipment	ft. (m)	50 (15)	
	Limit of tubing length tubing length	ft. (m)	130 (40)	
	Limit of elevation difference between the 2 units	ft. (m)	Outdoor unit is higher than indoor unit: 50 (15) Outdoor unit is lower than indoor unit: 50 (15)	
	Refrigerant tube o.d.: Narrow tube	in. (mm)	3/8 (9.52)	
	Refrigerant tube o.d.: Wide tube	in. (mm)	3/4 (19.05)	
	Refrigerant tube kit		Optional	
	Accessories		Mounting bracket	
Dimensions & Weight			Indoor unit	Outdoor unit
	Height	in. (mm)	9-27/32 (250)	38 (965)
	Width	in. (mm)	61-13/16 (1,570)	26-3/8 (670)
	Depth	in. (mm)	26-3/8 (670)	26-3/8 (670)
	Net weight	lbs. (kg)	90 (41)	209 (95)
	Shipping volume	cu. ft. (cu. m)	15.5 (0.439)	25 (0.708)
	Shipping weight	lbs. (kg)	115 (52)	235 (107)

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Remarks: Rating conditions are: Outside air temperature 95°F DB/75°F WB
Indoor unit entering air temperature 80°F DB/67°F WB

1-2 Major Component Specifications

(1) Indoor Unit

Unit Model No.				TS3622
Remote Control Unit				RCS-KS2412W
Controller PCB				POW-XS2422
	Control circuit fuse			250V, 3A
Switch Ass'y				SW-TS2422
Indicator Lamp Ass'y				IND-TS2422
Fan	Type			Centrifugal
	Number … Dia.		in. (mm)	4 … O.D. 5-29/32 (150)
Fan Motor	Model … Number			KFG4Q-91A6P … 1
	No. of pole … rpm (High)			4 … 1,200 / 1,100
	Nominal output		W (H.P.)	90 (3/25)
	Coil resistance (Ambient temp. 68°F)		Ω	BRN – WHT: 46.8 WHT – VLT: 9.5 VLT – ORG: 12.7 ORG – YEL: 233.8 WHT – PNK: 54.6
	Safety devices	Type		Internal
		Operating temp.	Open °F	248 ± 9
			Close °F	171 ± 27
	Run capacitor		μF	4
			VAC	440
Louver Motor	Model			MC8 D
	Rating			220 to 240V, 60Hz
	No. of pole … rpm			8 … 4
	Output		W	3
	Coil resistance (at 77°F)		Ω	14,900 ± 8%
Dew Proof Heater				230V, 17W
Heat Exch.	Coil			Aluminum plate fin / Copper tube
	Rows … Fins per inch			3 … 12.7
	Face area		$ft.^2$ (m^2)	3.66 (0.34)
External Finish				Acrylic baked-on enamel finish

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

(2) Outdoor Unit

Unit Model No.					C3622
Compressor					Rotary (hermetic)
	Model ... Number				C-R221H8U ... 1
	No. of cyl. ... rpm				1 ... 3,500
	Nominal output			W (H.P.)	2,200 (3)
	Compressor lubricant			cc	1,500
	Coil resistance (Ambient temp. 77°F)			Ω	C – R: 0.76 C – S: 2.76
	Safety devices	Type			Internal
		Overload relay models			—
		Operating temp.	Open	°F	160 ± 5
			Close	°F	87 ± 11
		Operating amp. (Ambient temp. 77°F)			—
	Run capacitor			μF	40
				VAC	370
	Crank case heater				—
Fan	Type				Propeller
	Number ... Dia.			in. (mm)	1 ... 19-15/16 (500)
Fan Motor	Model				KFC6S-161A6P
	No. of pole ... rpm (230V, High)				6 ... 820
	Nominal output			W (H.P.)	160 (1/5)
	Coil resistance (Ambient temp. 68°F)			Ω	WHT – BRN: 34.9 WHT – PNK: 72.1 PNK – YEL: 81.6
	Safety devices	Type			Internal
		Operating temp.	Open	°F	248 ± 9
			Close	°F	171 ± 27
	Run capacitor			μF	4
				VAC	440
Heat Exch.	Coil				Aluminum plate fin / Copper tube
	Rows ... Fins per inch				2 ... 12.7
	Face area			$ft.^2$ (m^2)	13.17 (1.22)
External Finish					Acrylic baked-on enamel finish

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

1-3 Other Component Specifications

(1) Indoor Unit

Transformer		ATR-H122U
Rated	Primary	AC 220V, 60Hz
	Secondary	10V, 1.2A
	Capacity	12VA
Coil resistance	Ω (at 77°F)	Primary (WHT – WHT): 146 ± 15%
		Secondary (BRN – BRN): 0.5 ± 15%
Thermal cut-off temp.		259°F, 2A, 250V

Thermistor (coil sensor)		PBC-41E-S24			
Resistance	kΩ	14°F	23.7 ± 5%	77°F	5.3 ± 5%
		32°F	15.0 ± 5%	86°F	4.4 ± 5%
		50°F	9.7 ± 5%	104°F	3.1 ± 5%
		68°F	6.5 ± 5%		

Thermistor (room sensor)		SDT-500B-6			
Resistance	kΩ	50°F	10.3 ± 4%	86°F	4.0 ± 4%
		59°F	8.0 ± 4%	104°F	2.6 ± 4%
		68°F	6.3 ± 4%	122°F	1.8 ± 4%
		77°F	5.0 ± 4%		

(2) Outdoor Unit

High Pressure Switch			FTB-2UC01
Operating pressure	psig	OFF	412 + 14, –7
		ON	Manual
Contact rating			AC 240V, 4A

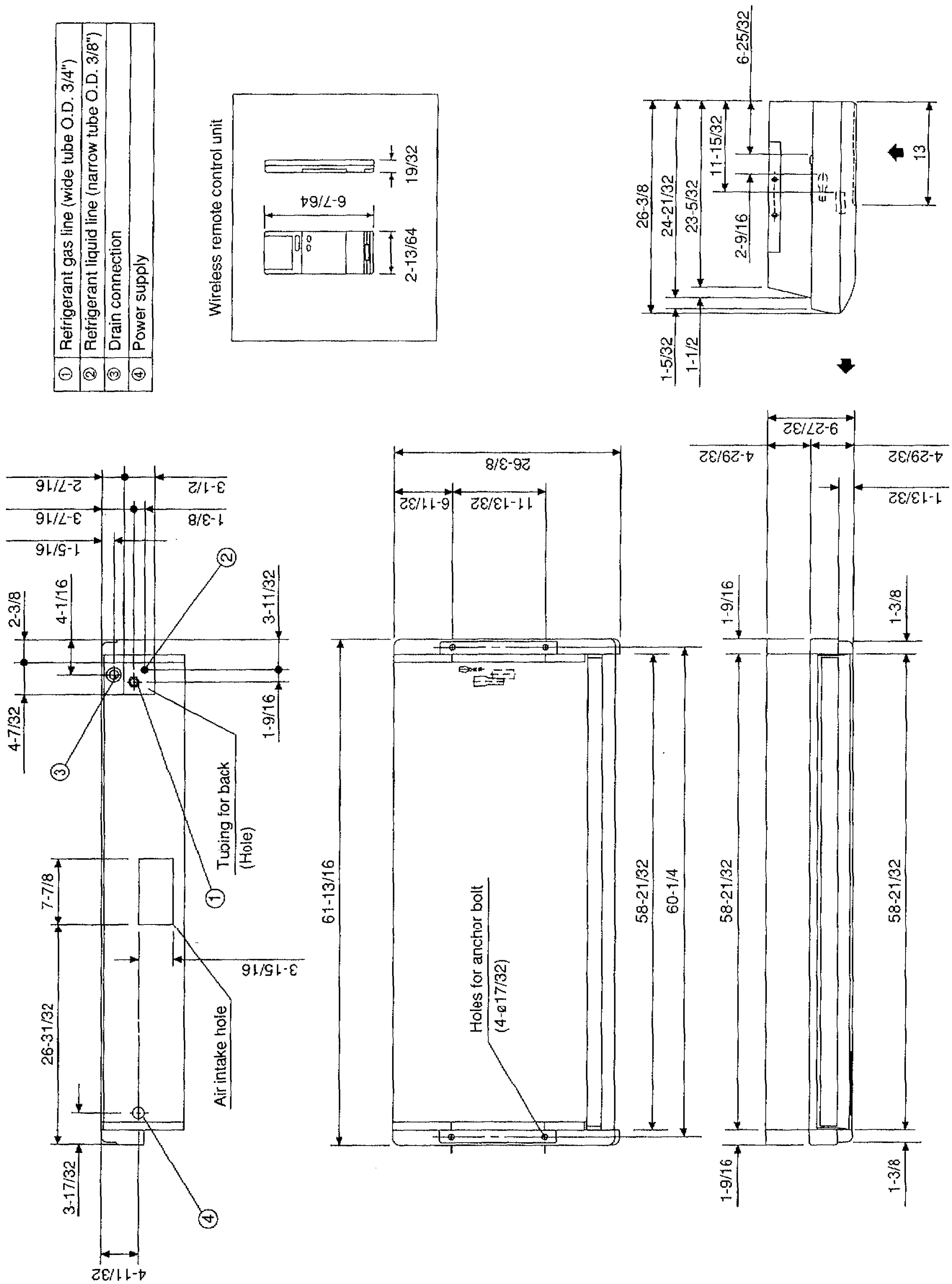
Thermistor (PTC)		TDK 101YV
Resistance	Ω (at 77°F)	100 ± 20%

Electro-Magnetic Contactor		FMCA-1SUL
Coil rating		AC 240V
Coil resistance	Ω (at 77°F)	580 ± 15%
Contact rating (Main)		AC 240V, 26A
(Auxiliary)		AC 240V, 3A

Thermostat			YTB-4U305F
Operating temp.	°F	ON	75 + 3, –1
		OFF	79 ± 3
Contact rating			200 to 240V, 1A

2. DIMENSIONAL DATA

Indoor Unit: TS3622

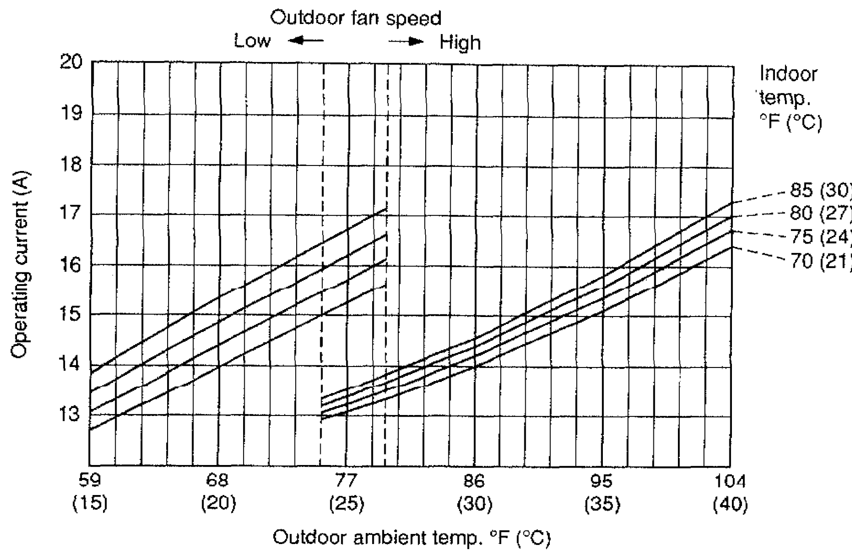


3. PERFORMANCE CHARTS

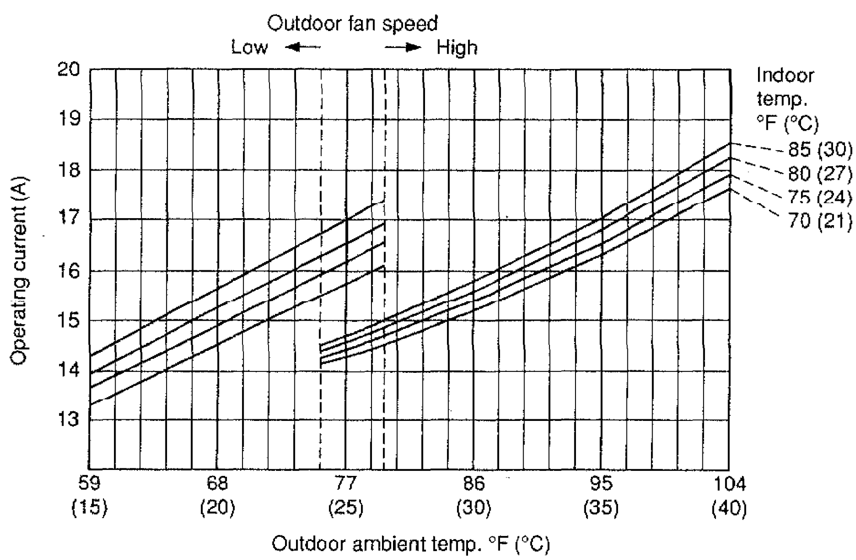
3-1 Operating Current

Operating current characteristics versus outdoor ambient temperature and indoor temperature
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V



208V

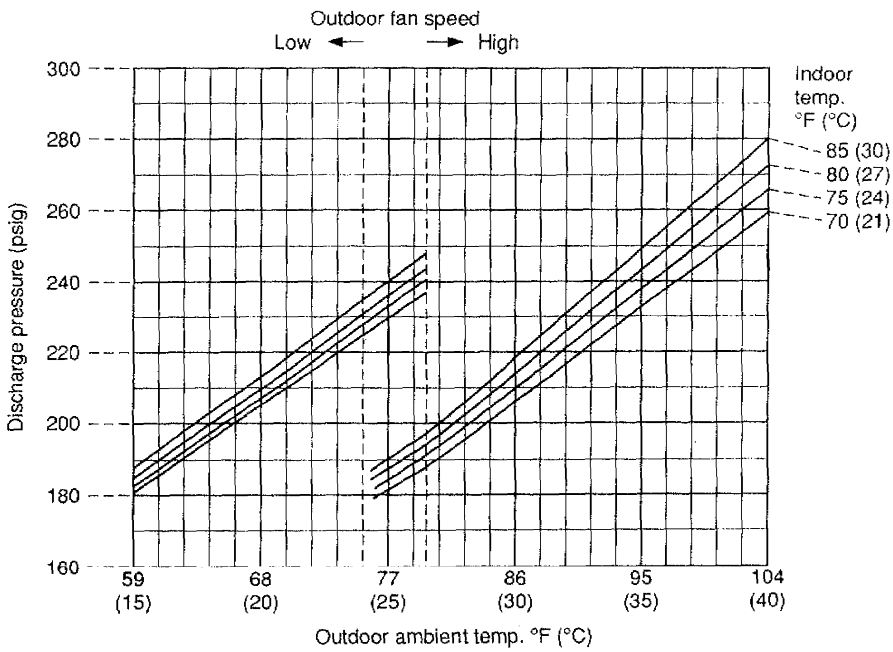


3-2 High and Low Pressure

● High Pressure

High pressure characteristics versus outdoor ambient temperature and indoor temperature
(Indoor relative humidity: 50%, Indoor fan speed: High)

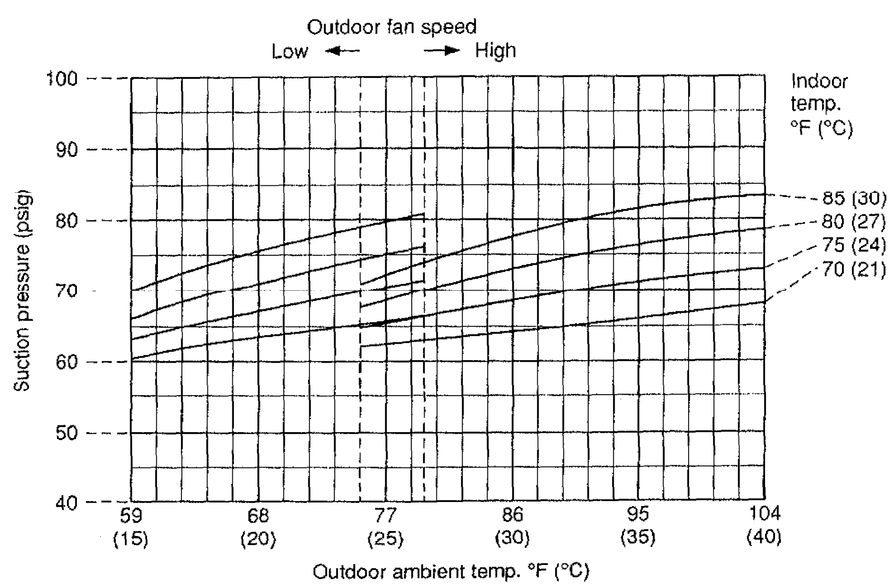
230V



● Low Pressure

Low pressure characteristics versus outdoor ambient temperature and indoor temperature
(Indoor relative humidity: 50%, Indoor fan speed: High)

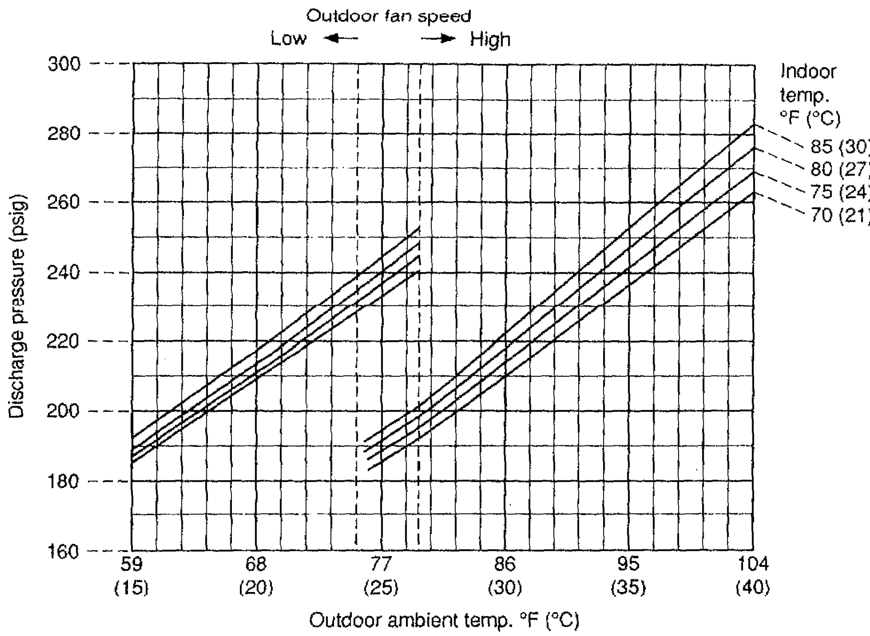
230V



● High Pressure

High pressure characteristics versus outdoor ambient temperature and indoor temperature (Indoor relative humidity: 50%, Indoor fan speed: High)

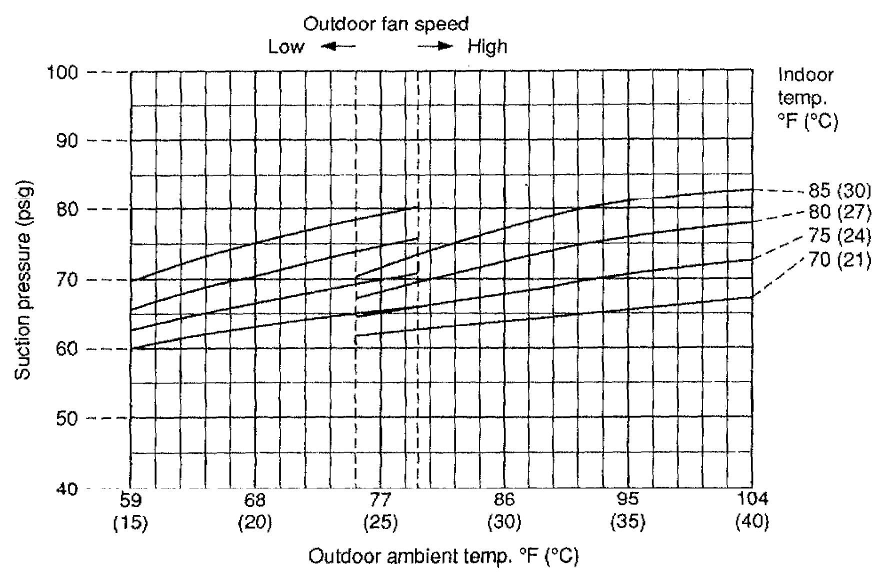
208V



● Low Pressure

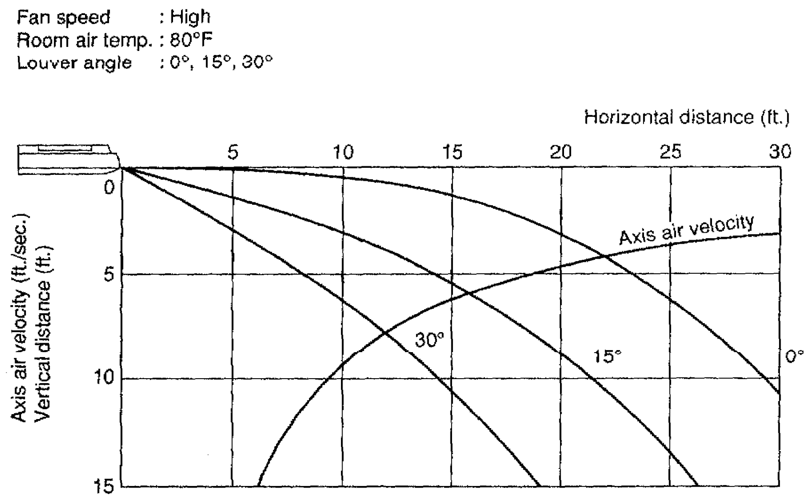
Low pressure characteristics versus outdoor ambient temperature and indoor temperature (Indoor relative humidity: 50%, Indoor fan speed: High)

208V



4. AIR THROW DISTANCE CHART

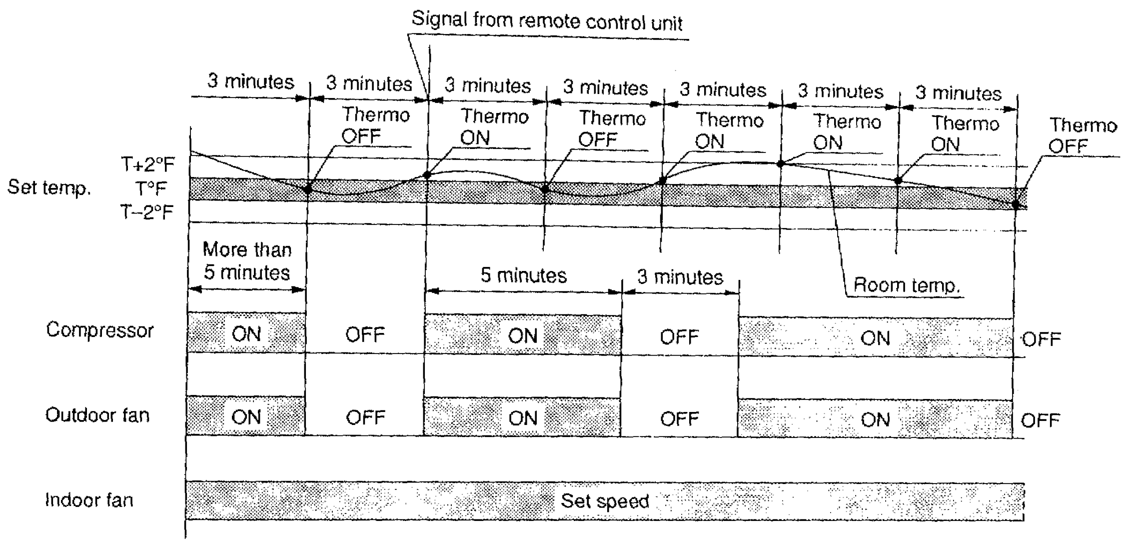
Model: TS3622



5. FUNCTION

5-1 Room Temperature Control

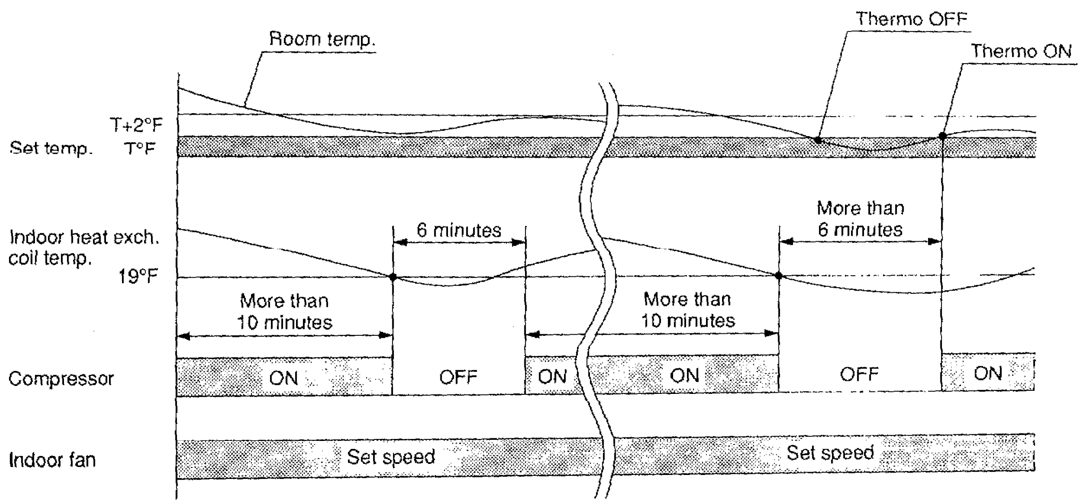
- Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.
- The room temperature (and other information) is transmitted every 3 minutes by the remote control unit to the controller in the indoor unit.



- The control circuit will not attempt to turn the compressor ON until the compressor has been OFF for at least 3 minutes. To protect the compressor from stalling out when trying to start against the high side refrigerant pressure, the control circuit has a built-in automatic time delay to allow the internal pressure to equalize.
- As a protective measure, the control circuit switches the compressor OFF after 5 minutes or more of compressor operation.
- Thermo ON: When the room temperature is above T + 2°F (T°F is set temperature).
  Compressor → ON
- Thermo OFF: When the room temperature is equal to or below set temperature T°F.
  Compressor → OFF

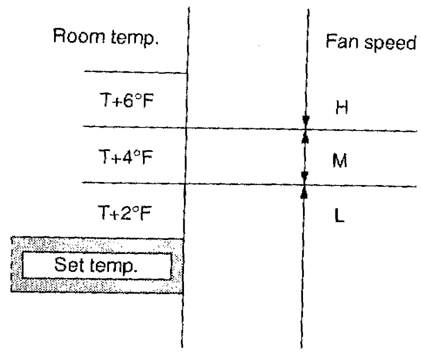
5-2 Freeze Prevention

- This function prevents freezing of the indoor heat exchange coil.
- When the compressor has been running for 10 minutes or more and the temperature of the indoor heat exchange coil falls below 19°F, the control circuit stops the compressor for at least 6 minutes.



5-3 Fan Speed Auto (Indoor Fan)

- The fan speed does not change within 1 minute.
- The number shows temperature for REMOCON sensor.



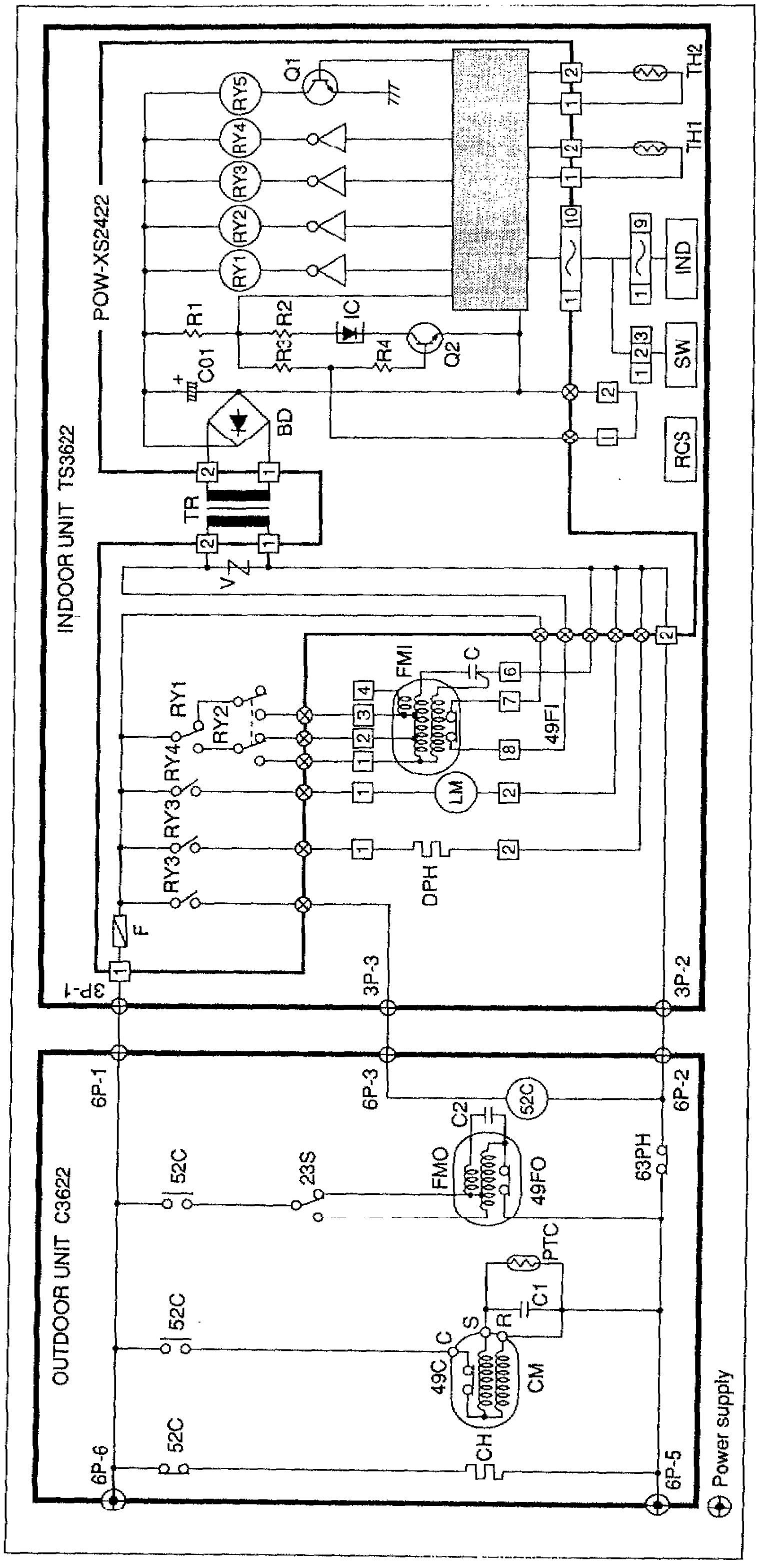
5-4 Outdoor Fan Speed Control

- In low temperature areas, the outdoor fan goes automatically to LOW to prevent freezing.
- When the outdoor air temperature falls below 75°F, the outdoor fan is set to LOW.
  When the outdoor air temperature rises to 79°F, the outdoor fan is set to HIGH.

6. ELECTRICAL DATA

● Schematic Diagram

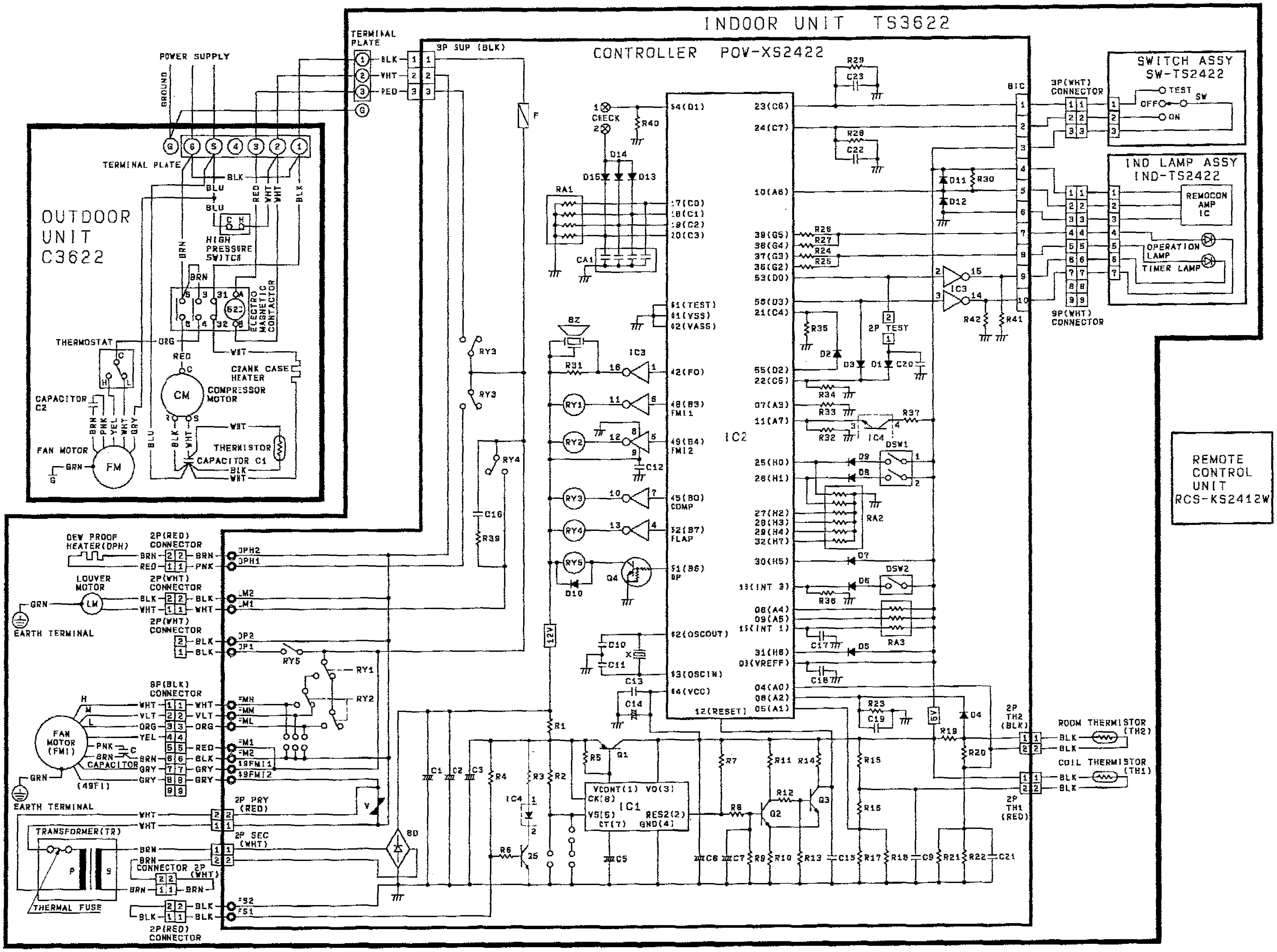
TS3622 / C3622



Symbol	Description	Symbol	Description
OUTDOOR UNIT		49FI	INDOOR FAN MOTOR INTERNAL PROTECTOR
CH	CRANK CASE HEATER	TR	TRANSFORMER
CM	COMPRESSOR MOTOR	TH1	THERMISTOR (COIL TEMP. SENSOR)
49C	COMPRESSOR MOTOR INTERNAL PROTECTOR	TH2	THERMISTOR (ROOM TEMP. SENSOR)
PTC	THERMISTOR	IND	IND LAMP ASS'Y IND-TS2422
23S	THERMOSTAT	SW	SWITCH ASS'Y SW-TS2422
FMO	OUTDOOR FAN MOTOR	RCS	WIRELESS REMOTE CONTROL UNIT RCS-XS2412W
49FO	OUTDOOR FAN MOTOR INTERNAL PROTECTOR		
C1, C2	CAPACITOR	POW-XS2422	CONTROLLER PCB ASS'Y
52C	ELECTRO-MAGNETIC CONTACTOR	F	FUSE 250V, 3A
63PH	HIGH PRESSURE SWITCH	V	VARISTOR
		BD	BRIDGE DIODE
INDOOR UNIT		C01	CAPACITOR
DPH	DEW PROOF HEATER	R1 – R4	RESISTOR
LM	LOUVER MOTOR	IC	IC
FMI	INDOOR FAN MOTOR	RY1 – RY5	AUXILIARY RELAY
C	CAPACITOR	Q1, Q2	TRANSISTOR

- **Electric Wiring Diagram (PCB Ass'y)**

TS3622 / C3622



POW-XS2422

Symbol	Description	Specifications
R1	RESISTOR	5.6Ω 1/2W ±5%
R2	RESISTOR	27K 1/4W ±5%
R3	RESISTOR	1K 1/4W ±5%
R4	RESISTOR	10K 1/4W ±5%
R5	RESISTOR	390Ω 1/4W ±5%
R6	RESISTOR	5.6K 1/4W ±5%
R7	RESISTOR	1K 1/4W ±5%
R8	RESISTOR	27K 1/4W ±5%
R9	RESISTOR	22K 1/4W ±5%
R10	RESISTOR	560Ω 1/4W ±5%
R11	RESISTOR	4.7K 1/4W ±5%
R12	RESISTOR	5.6K 1/4W ±5%
R13	RESISTOR	8.2K 1/4W ±5%
R14	RESISTOR	4.7K 1/4W ±5%
R15	RESISTOR	12K 1/4W ±1%
R16	RESISTOR	750Ω 1/4W ±1%
R17	RESISTOR	6.8K 1/4W ±1%
R18	RESISTOR	10K 1/4W ±1%
R19	RESISTOR	180Ω 1/4W ±1%
R20	RESISTOR	15K 1/4W ±1%
R21	RESISTOR	6.2K 1/4W ±1%
R22	RESISTOR	11K 1/4W ±1%
R23	RESISTOR	100K 1/4W ±5%
R24	RESISTOR	270Ω 1/4W ±1%
R25	RESISTOR	270Ω 1/4W ±5%
R26	RESISTOR	270Ω 1/4W ±5%
R27	RESISTOR	270Ω 1/4W ±5%
R28	RESISTOR	5.6K 1/4W ±5%
R29	RESISTOR	5.6K 1/4W ±5%
R30	RESISTOR	100k 1/4W ±5%
R31	RESISTOR	6.8K 1/4W ±5%
R32	RESISTOR	56K 1/4W ±5%
R33	RESISTOR	56K 1/4W ±5%
R34	RESISTOR	56K 1/4W ±5%
R35	RESISTOR	56k 1/4W ±5%
R36	RESISTOR	56K 1/4W ±5%
R37	RESISTOR	1K 1/4W ±5%
R39	RESISTOR	100Ω 1W ±1%
R40	RESISTOR	56K 1/4W ±5%
R41	RESISTOR	56K 1/4W ±5%
R42	RESISTOR	56K 1/4W ±5%
C1	CAPACITOR	2200μF 25V
C2	CAPACITOR	1μF 50V
C3	CAPACITOR	10μF 50V
C5	CAPACITOR	1μF 50V
C6	CAPACITOR	220μF 16V
C7	CAPACITOR	1μF 50V
C9	CAPACITOR	104 50V
C10	CAPACITOR	30P 50V
C11	CAPACITOR	30P 50V
C12	CAPACITOR	473 50V
C13	CAPACITOR	104 50V
C14	CAPACITOR	100μF 10V
C15	CAPACITOR	223 50V
C16	CAPACITOR	0.01μF 250V
C17	CAPACITOR	472 50V
C18	CAPACITOR	223 50V
C19	CAPACITOR	223 50V
C20	CAPACITOR	223 50V

POW-XS2422

Symbol	Description	Specifications
C21	CAPACITOR	104 50V
C22	CAPACITOR	472 50V
C23	CAPACITOR	472 50V
RA1	RESISTOR ARAY	56K 4BIT
RA2	RESISTOR ARAY	56K 6BIT
RA3	RESISTOR ARAY	20K 3BIT
CA1	CPACITOR ARAY	472 4BIT
D1	DIODE	DS446
D2	DIODE	DS446
D3	DIODE	DS446
D4	DIODE	DS446
D5	DIODE	DS446
D6	DIODE	DS446
D7	DIODE	DS446
D8	DIODE	DS446
D9	DIODE	DS446
D10	DIODE	DS446
D11	DIODE	DS446
D12	DIODE	DS446
D13	DIODE	DS446
D14	DIODE	DS446
D15	DIODE	DS446
BD	BRIDGE DIODE	DBA10C
IC1	IC	LA5693D
IC2	IC (MICON)	TMS73C161-C76577
IC3	IC	LB1234
IC4	IC	PC817
Q1	TRANSISTOR	2SA1289
Q2	TRANSISTOR	2SC536
Q3	TRANSISTOR	2SC536
Q4	TRANSISTOR	3402
Q5	TRANSISTOR	2SC536
V	VARISTOR	DVSNR681KD14N
X	OSCILLATOR	CSA4. OOMG
F	FUSE	250V, 3A
BZ	BUZZER	PKM24SP-3805
DSW1	SWITCH	JKS1120-0402
DSW1	SWITCH	JKS1120-0402
RY1	RELAY	VB12TBU
RY2	RELAY	VB12TBU
RY3	RELAY	VB12TBU
RY4	RELAY	LZG-12HE
RY5	RELAY	LZG-12HE
3P SUP	CONNECTOR	2-173270-3
2P PRY	CONNECTOR	8-173270-2
2P SEC	CONNECTOR	5273-02A
2P TEST	CONNECTOR	NHK-P2T-N
2P TH1	CONNECTOR	8-171825-2
2P TH2	CONNECTOR	2-171825-2
⊗	BOARD PIN	–
▢	BIC	PD054-09M
◎	BOARD IN CONNECTOR	

7. TROUBLESHOOTING

7-1 Check before and after troubleshooting.

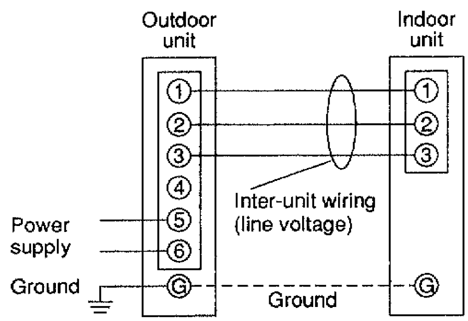
(1) Check power supply wiring.

- Check that power supply wires are correctly connected to terminals No. 5 and No. 6 on the 6P terminal plate in the outdoor unit.

(2) Check inter-unit wiring.

- Check that inter-unit wires are correctly connected to indoor unit from outdoor unit.

Power supply:
60Hz, single-phase, 230/208V



(3) Check power supply.

- Check that voltage is in specified range (±10% of the rating).
- Check that power is being supplied.

WARNING:

If the following troubleshooting must be done with power being supplied, be careful about any uninsulated live part that can cause ELECTRIC SHOCK.

(4) Check lead wires and connectors in indoor and outdoor units.

- Check that coating of lead wires is not damaged.
- Check that lead wires and connectors are connected firmly.
- Check that wiring is correct.

(5) Reference

(a) Condition of general cooling operation

ON/OFF operation button .... ON

COOL/FAN selector switch .... COOL

SWEEP button .... ON

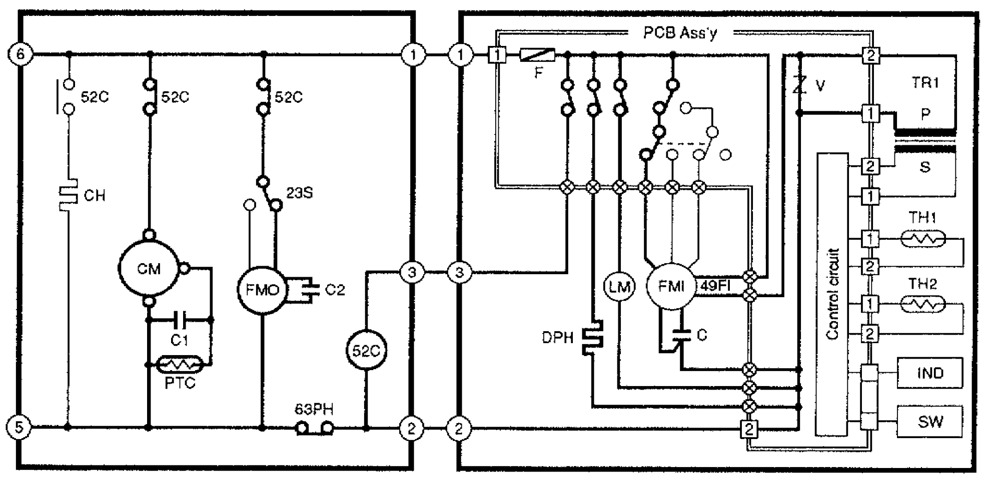
Indoor fan speed .... HIGH

Thermo.. ON

Outdoor air temperature.................................... above 79°F

Outdoor unit C3622

Indoor unit TS3622



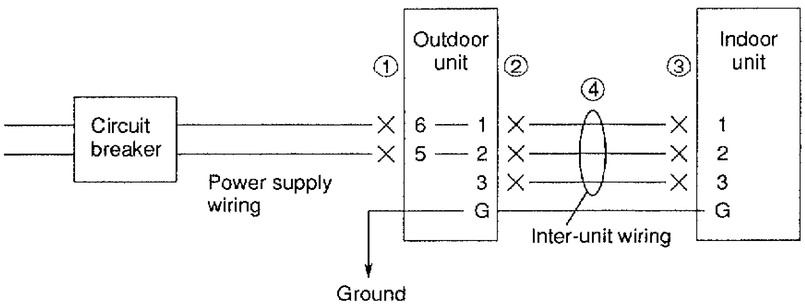
7-2 Air conditioner does not operate.

(1) Circuit breaker trips (or fuse blows).

(a) When circuit breaker is set to ON, it trips in a few moments (resetting is not possible).

- There is a possibility of ground fault.
- Measure insulation resistance.

If resistance value is 1MΩ or less, insulation is defective ("NO").



*Set circuit breaker to OFF.

① Remove power supply wires from terminal plate in outdoor unit.
• Measure insulation resistance of power supply wires.
NO → Do rewiring.

② Remove inter-unit wires from terminal plate in indoor unit.
• Measure insulation resistance of indoor unit.
NO → Insulation of indoor unit is defective.
• Measure insulation resistance of electrical parts in indoor unit.

③ Remove inter-unit wires from terminal plate in outdoor unit.
• Measure insulation resistance of outdoor unit.
NO → Insulation of outdoor unit is defective.
• Measure insulation resistance of electrical parts in outdoor unit.

④ Measure insulation resistance of inter-unit wires.
NO → Do rewiring.

(b) Circuit breaker trips in several minutes after turning air conditioner ON.

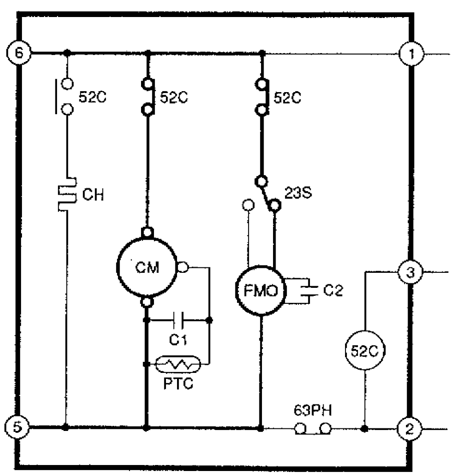
- There is a possibility of short circuit.

• Check capacity of circuit breaker. Is capacity of circuit breaker suitable?	NO →	Replace it with suitable one (larger capacity).

• Measure resistance of compressor motor winding.

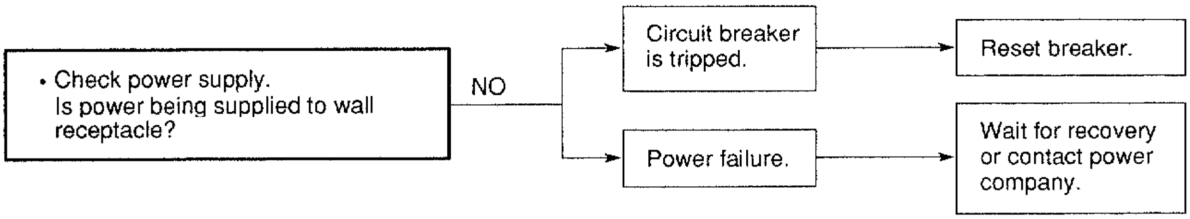
• Measure resistance of outdoor fan motor winding.

Outdoor unit

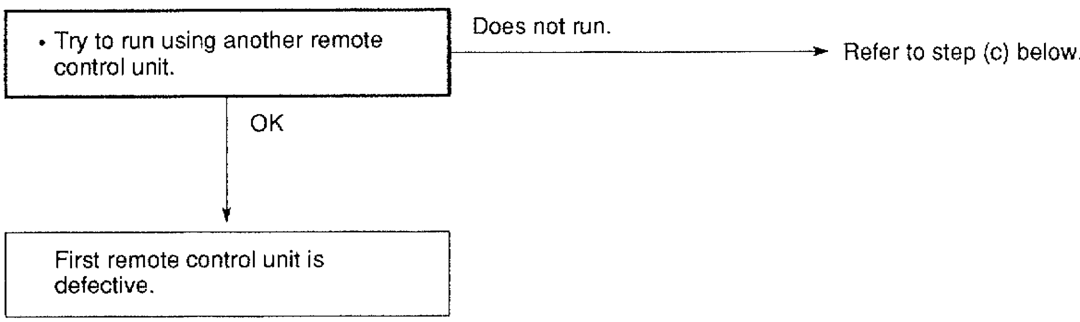


(2) Neither indoor unit nor outdoor unit runs.

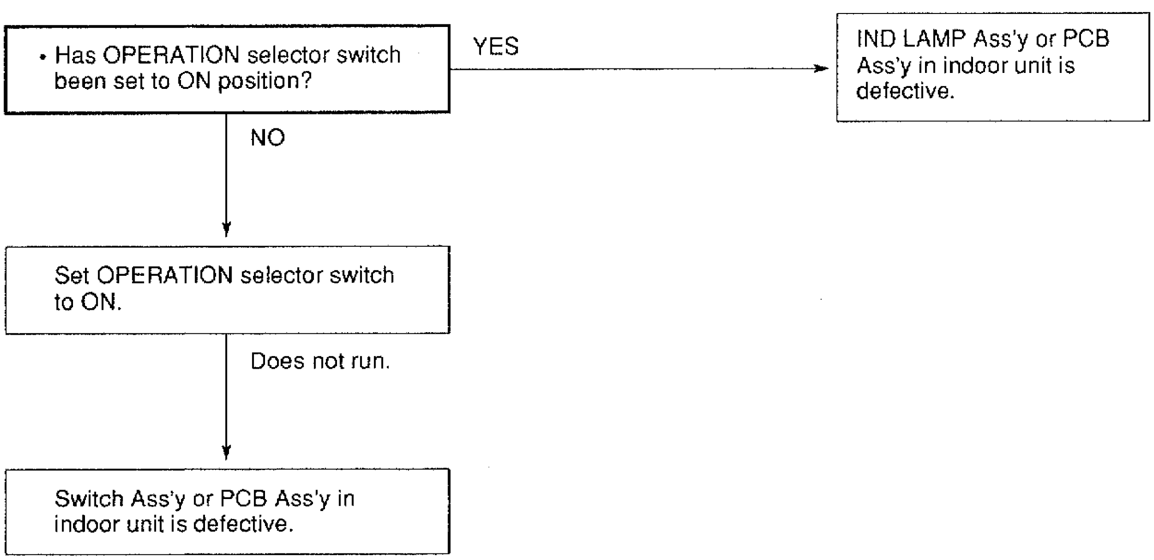
(a) Power is not supplied.



(b) Check remote control unit.



(c) Check OPERATION selector switch in indoor unit.



(d) Check fuse on PCB Ass'y in indoor unit.

- Check fuse on PCB Ass'y in indoor unit for continuity.

If the fuse blows,

↓

- Measure resistance of primary winding of transformer. (TR)

OK ↓

- Measure resistance of indoor fan motor winding. (FMI)

OK ↓

- Measure resistance of louver motor winding. (LM)

OK ↓

- Check dew-proof heater. (DPH)

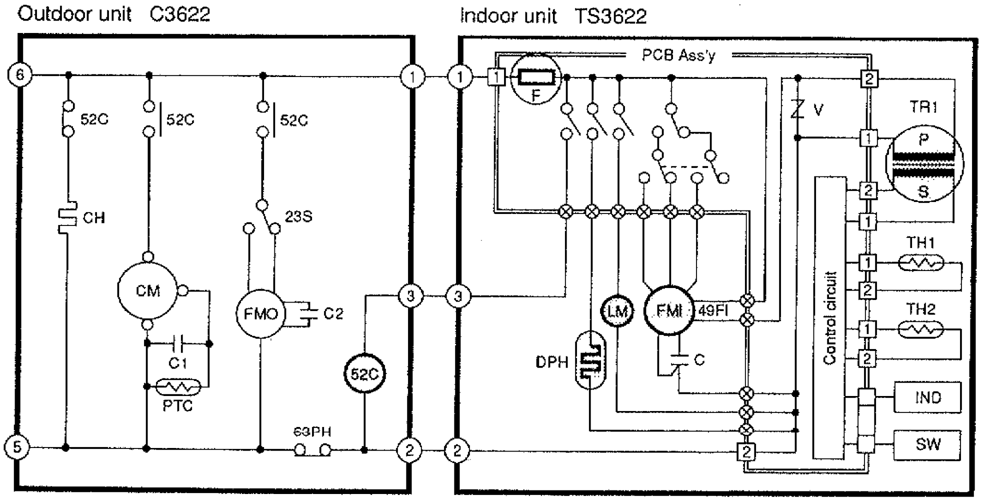
OK ↓

- Measure coil resistance of electro-magnetic contactor. (52C)

OK ↓

- PCB Ass'y is defective.

Outdoor unit C3622 Indoor unit TS3622



(Neither indoor unit nor outdoor unit runs.) (cont'd)

(e) **Check high pressure switch (63PH).**

- System does not run when high pressure switch is operated.

• Check for continuity between No.2 and No.5 terminals on 6P terminal plate in outdoor unit.

There is continuity. → The system is normal.

No continuity.
High pressure switch is operated.

↓

• Is outdoor heat exchanger coil dirty or are there obstacles near air suction inlet of outdoor unit?

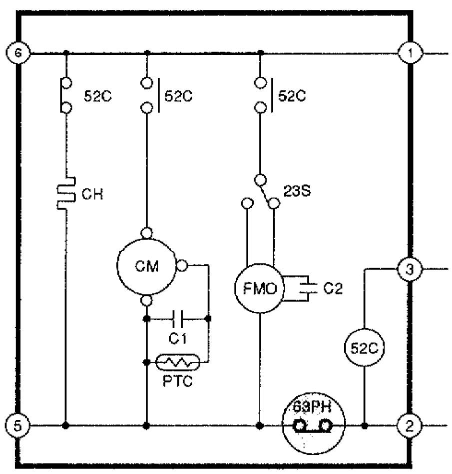
YES → Clean heat exchanger coil or remove obstacles.

NO

↓

• Check outdoor fan rotation.
Refer to "Only outdoor fan does not run."

Outdoor unit



(f) Check thermal protector (49FI) in indoor fan motor.

- Disconnect the socket from 9P (BLK) connector.

• Check for continuity between No.7 and No.8 poles of 9P socket.

↓ No continuity.

• Thermal protector (49FI) is operated.

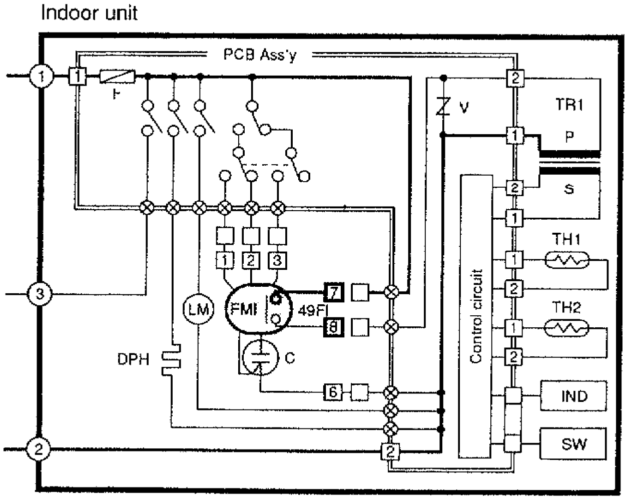
• Check fan rotation. Turn fan gently once or twice by hand.

Fan cannot be turned.
- → • Check fan casing for foreign matter on inside. → Remove foreign matter or repair.
- → Fan motor burnout or foreign matter in bearings. → Repair or replace.

↓ OK

• Check fan motor capacitor.

Indoor unit



(3) Only outdoor unit does not run.

(a) Check COOL/FAN selector switch of remote control unit.

• Is COOL/FAN selector switch set to COOL?

NO → Set to COOL.

(b) Outdoor unit does not run when air conditioner is in following conditions.

- During thermo OFF (when the room temperature is below the setting temperature).
- During freeze prevention (for at least 6 minutes).

• Check setting temperature.

Try to lower setting temperature by temperature setting button COOLER.

↓ Outdoor unit does not run.

Is room temperature too low?

↓ NO

• Try to run using another remote control unit.

↓ OK

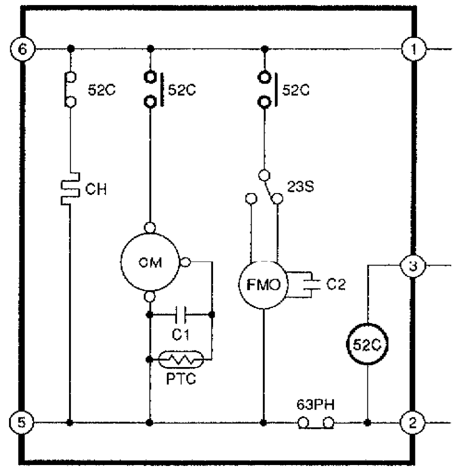
First remote control unit is defective.
(Room sensor in remote control unit is defective.)

(Only outdoor unit does not run.) (cont'd)

(c) Check electro-magnetic contactor.

- Measure coil resistance of electro-magnetic contactor. (52C)

Outdoor unit



(d) Check PCB Ass'y.

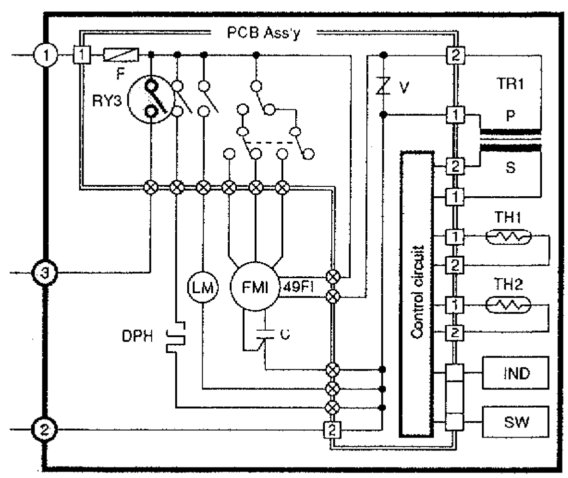
- Measure voltage between terminals No.2 and No.3 on terminal plate.

No voltage registers.

↓

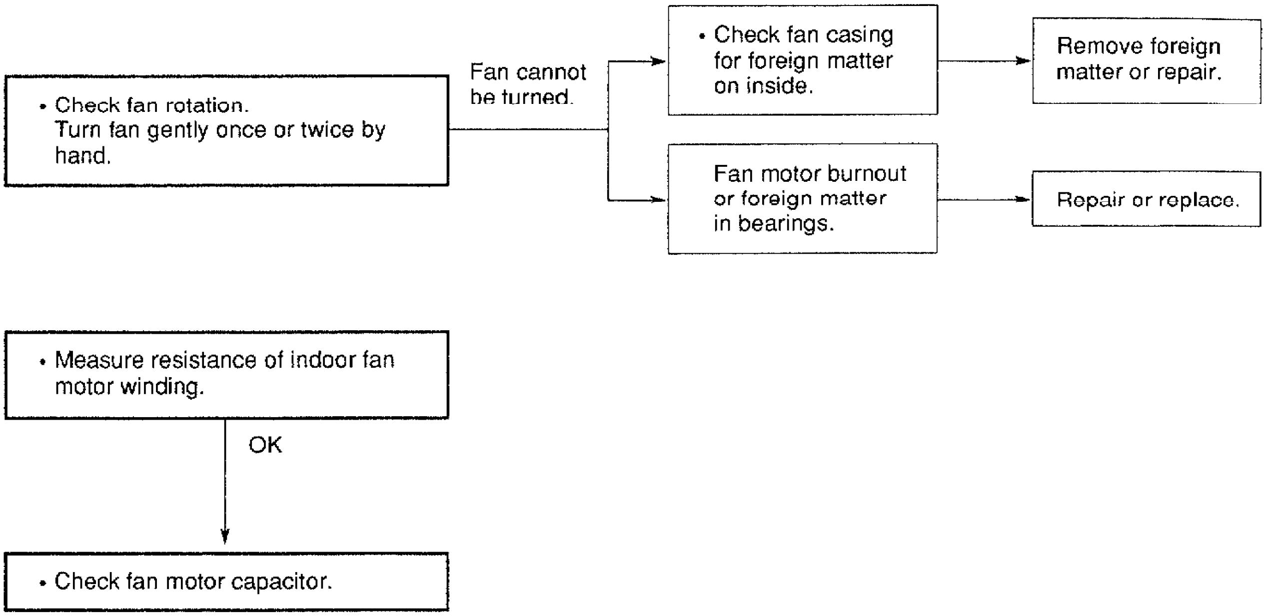
PCB Ass'y is defective.
(RY3 is defective.)

Indoor unit

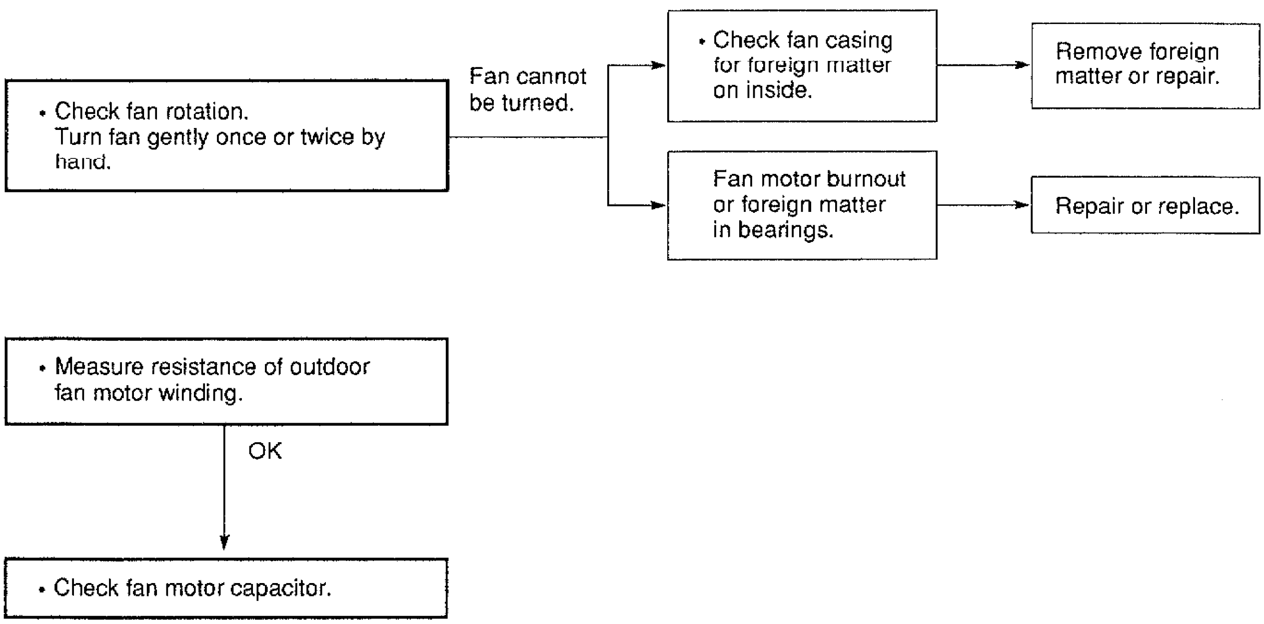


7-3 A particular component of air conditioner does not operate.

(1) Only indoor fan does not run.



(2) Only outdoor fan does not run.



(3) Only compressor does not run.

- Check compressor motor capacitor (C2).

OK ↓

- Check PTC.

OK ↓

- Measure resistance of compressor motor winding.

Wait for 30 minutes until compressor has cooled.

Compressor runs. ↓

Compressor internal thermal protector is operated. (49C)

↓

- Check power supply voltage.
  Is voltage abnormally low?

NO ↓

- Is outdoor heat exchanger coil dirty or are there obstacles near air suction inlet?

7-4 Air conditioner operates, but abnormalities occur.

(1) Poor Cooling

- Check installation position of remote control unit.
- Does cool air from air conditioner reach position directly?

YES → Change installation position of remote control unit.

- Is wide tube between indoor unit and outdoor unit insulated?

NO → Insulate wide tube and then tape together with narrow tube.

YES ↓

- Measure temperature of suction and discharge air of air conditioner

Temperature difference is small. → Possibility of gas shortage. → Charge refrigerant gas (R22).

Temperature difference between suction and discharge air is large enough (approx. 18°F or more). ↓

- Check for clogging of air filter.

Air filter is clogged. → Clean filter.

- Is fan speed set to LOW?

YES → Set fan speed to either HIGH or MEDIUM.

- Review cooling load estimate, if performance of air conditioner is normal.

→ Reduce cooling load or replace unit with higher cooling capacity.

(2) Excessive Cooling

• Is set temperature suitable? — NO → Set temperature to higher value using temperature setting button WARMER.

• Is remote control unit installed at place where it can detect room temperature properly? — NO → Change installation position of remote control unit.

7-5 Indoor (heat exchanger) coil temperature sensor (TH1) is defective.

(1) Open

Even though the air conditioner does not thermo OFF, compressor and outdoor fan repeat ON for 10 minutes and OFF for 6 minutes.

(2) Shortage

When dehumidified water freezes in the indoor coil, the freeze prevention function does not work.

8. CHECKING ELECTRICAL COMPONENTS

8-1 Measurement of Insulation Resistance

- The insulation is in good condition if the resistance exceeds 1 MΩ.

(1) Power Supply Wires

Clamp the grounded wire of the power supply wires with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires. (Fig. 1)

Then measure the resistance between the grounded wire and the other power wires. (Fig. 1)

(2) Indoor Unit

Clamp an aluminum plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on ①, and then ② on the terminal plate. (Fig. 2)

(3) Outdoor Unit

Clamp a metallic part of the unit with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on ⑤, and then ⑥ on the terminal plate. (Fig. 2)

(4) Measurement of Insulation Resistance for Electrical Parts

Disconnect the lead wires of the desired electric part from terminal plate, PCB Ass'y, capacitor, etc. Similarly disconnect the connector. Then measure the insulation resistance. (Figs. 1 to 4)

Refer to Electric Wiring Diagram.

Note: If the probe cannot enter the poles because the hole is too narrow then use a probe with a thinner pin.

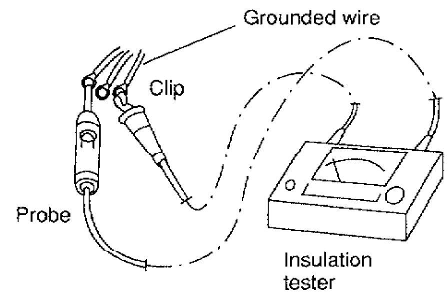


Fig. 1

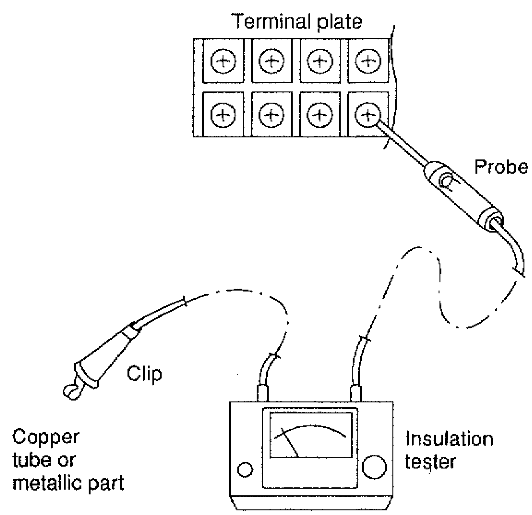


Fig. 2

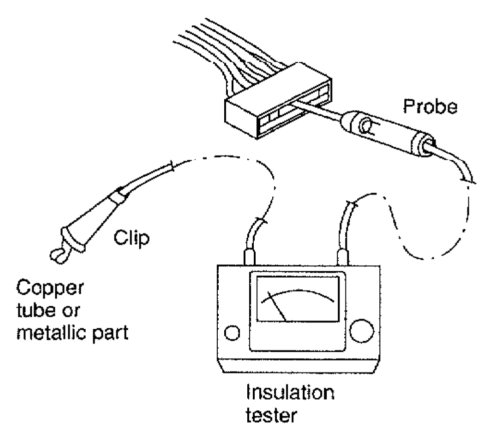


Fig. 3

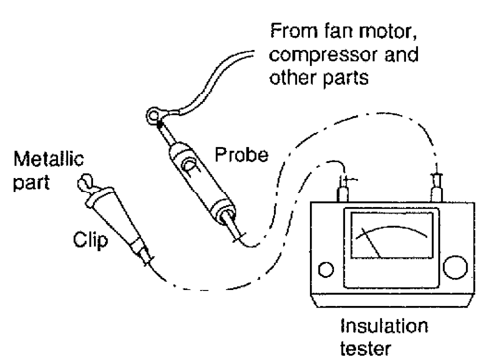


Fig. 4

8-2 Checking Continuity of Fuse on PCB Ass'y

- Check for continuity using a multimeter as shown in Fig. 5.

Method used to Replace Fuse on PCB Ass'y

1. Remove the PCB Ass'y from the electrical component box.
2. Pull out the fuse at the metal clasp using pliers while heating the soldered leads on the back side of the PCB Ass'y with a soldering iron (30W or 60W). (Fig. 6)
3. Remove the fuse ends one by one. For replacement, insert a fuse of the same rating and solder it. (Allow time to radiate heat during soldering so that the fuse does not melt.)

CAUTION: **When replacing the fuse, be sure not to break down the varistor.**

8-3 Checking Motor Capacitor

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig. 7. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.

The range of deflection and deflection time differ according to the capacity of the capacitor.

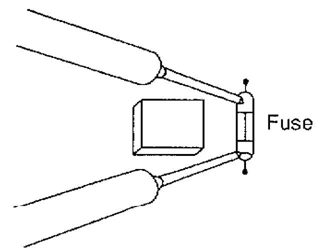


Fig. 5

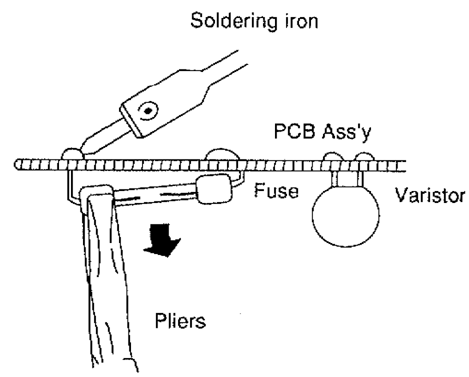


Fig. 6

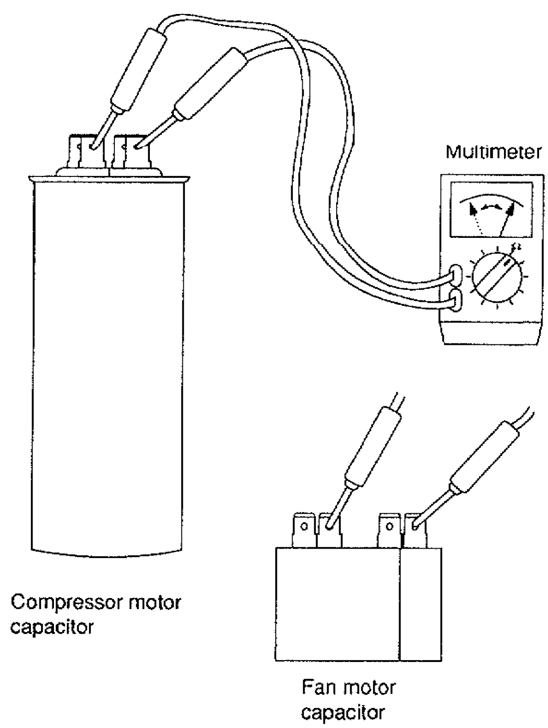


Fig. 7

8-4 Appearance of Electrical Parts

(1) High Pressure Switch

FTB-2UC01

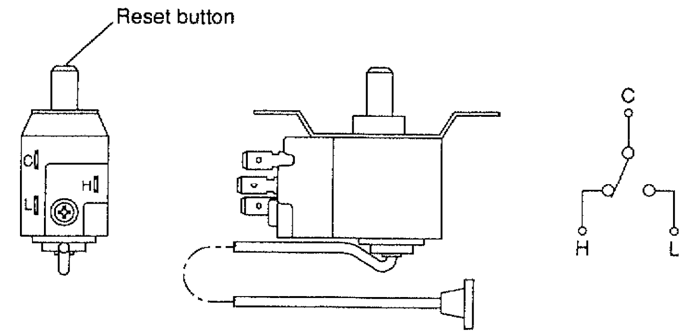


Fig. 8

(2) Thermistor (PTC)

TDK101YV

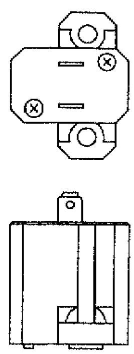


Fig. 9

(3) Electro-Magnetic Contactor

FMCA-1SUL

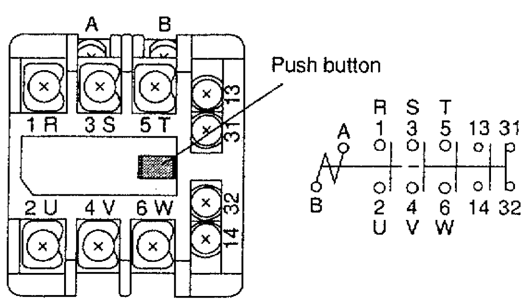


Fig. 10

(4) **Thermostat**

YTB-4U305F

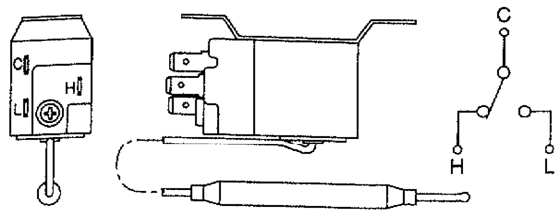


Fig. 11